

Ambient Air Monitoring Report

***National Industries, Inc. Reclamation Area Site
Park Hills, Missouri***

***Prepared for
The Doe Run Company***

October 2012

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Ambient Air Monitoring Report

***National Industries, Inc. Reclamation Area Site
Park Hills, Missouri***

***Prepared for
The Doe Run Company***

October 2012



***1001 Diamond Ridge Suite 1100
Jefferson City, MO 65109
Phone: (573) 638-5000
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January 9, 2013

Mr. Mark Nations
The Doe Run Company
P.O. Box 1633
Desloge, Missouri 63601

Re: Ambient Air Monitoring Report – National Site

Dear Mr. Nations:

Please find attached the October 2012 “*Ambient Air Monitoring Report*” for The Doe Run Company at the National Industries, Inc. Reclamation Area Sites, located near Park Hills, Missouri.

This report will include the following:

- **Glossary of Terms** – Listing of the abbreviations used for each parameter and unit.
- **Ambient Air Quality Standards** – Lists the maximum allowable concentrations for the measured parameters.
- **TSP, Lead & PM₁₀ Particulate Summaries** – Includes the averages of each monitored parameter, which relates to the federal standards.
- **Particulate and Lead Analysis Spreadsheets**.
- **Lab Results (lead & cadmium)** – Lab reports from Inovatia Laboratories, LLC.
- **Meteorological Data Printouts** – This supplies printouts of each parameter.

Barr Engineering Company offers this report as an independent laboratory. This includes the weighing of filters, obtaining lead and cadmium analysis, compiling the data, and preparing the report. No interpretation of the data or analysis of the results is implied or intended. Should you have any questions regarding this report, please call.

Respectfully,



Richard J. Campbell, PE
Chemical Engineer
Senior Environmental Consultant

c: Kathy Rangen
Jason Gunter
Ty Morris
Kevin Lombardozzi

GLOSSARY OF TERMS

$\mu\text{g}/\text{m}^3$	Micrograms per Cubic Meter
mph	Miles per Hour
Wind Direction	Degrees from True North
TSP	Total Suspended Particulate
PM ₁₀	Particulate Matter - 10 Microns or Less
mmHg	Millimeters of Mercury

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

PM ₁₀ – Particulate Matter	24-Hour*	Annual Maximum	150 $\mu\text{g}/\text{m}^3$
Lead	Calendar Quarter	Arithmetic Mean	1.5 $\mu\text{g}/\text{m}^3$
Lead	Rolling 3-Month Average	Arithmetic Mean	0.15 $\mu\text{g}/\text{m}^3$

TSP (Total Suspended Particulate) – There are no Federal Standards that apply solely for TSP.

*This standard must be exceeded more than once a year to constitute a violation.



TSP and Lead Concentration Summary

National
Park Hills, Missouri

2012

Date	TSP Big River #4 ($\mu\text{g}/\text{m}^3$)	TSP Ozark #1 ($\mu\text{g}/\text{m}^3$)	TSP Soccer #2 ($\mu\text{g}/\text{m}^3$)	TSP Water Plant #3 ($\mu\text{g}/\text{m}^3$)	LEAD Big River #4 ($\mu\text{g}/\text{m}^3$)	LEAD Ozark #1 ($\mu\text{g}/\text{m}^3$)	LEAD Soccer #2 ($\mu\text{g}/\text{m}^3$)	LEAD Water Plant #3 ($\mu\text{g}/\text{m}^3$)
10/1/12	31	32	35	23	0.016	0.011	0.014	0.017
10/2/12	31	29	28	22	0.032	0.015	0.020	0.010
10/3/12	33	36	37	31	0.008	0.014	0.017	0.008
10/4/12	41	30	39	36	0.027	0.016	0.024	0.015
10/5/12	17	12	25	12	0.000	0.000	0.006	0.000
10/8/12	22	13	13	8	0.039	0.011	0.014	0.000
10/9/12	13	13	18	12	0.000	0.000	0.008	0.000
10/10/12	17	19	14	10	0.014	0.006	0.012	0.009
10/11/12	27	27	25	19	0.012	0.009	0.016	0.000
10/12/12	23	21	23	20	0.000	0.000	0.012	0.000
10/15/12	27	19	21	21	0.030	0.007	0.014	0.023
10/16/12	17	29	30	18	0.007	0.029	0.085	0.000
10/17/12	51	38	30	48	0.007	0.009	0.019	0.011
10/18/12	34	46	40	41	0.000	0.000	0.013	0.008
10/19/12	13	12	10	12	0.010	0.000	0.000	0.034
10/22/12	29	36	46	30	0.008	0.022	0.052	0.000
10/23/12	24	28	40	26	0.000	0.000	0.029	0.000
10/24/12	28	31	39	27	0.007	0.007	0.024	0.000
10/25/12	13	14	14	17	0.000	0.000	0.006	0.025
10/26/12	12	11	40	11	0.000	0.000	0.012	0.000
10/29/12	28	39	23	22	0.018	0.010	0.006	0.019
10/30/12	36	30	25	37	0.029	0.019	0.007	0.083
10/31/12	37	26	23	21	0.033	0.015	0.017	0.039
Monthly Average	26	26	28	23	0.013	0.009	0.018	0.013
Sept 2012					0.023	0.008	0.023	0.012
Aug 2012					0.027	0.010	0.036	0.037
Rolling 3-month Average					0.02	0.01	0.03	0.02
					3-month Average Lead NAAQS $\mu\text{g}/\text{m}^3$			
					0.15			

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.



Particulate Summary

National
Park Hills, Missouri

2012

Date	PM ₁₀ Big River #4 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ Ozark #1 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ Soccer #2 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ Water Plant #3 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ NAAQS ($\mu\text{g}/\text{m}^3$)
3-Oct	20	19	13	20	150
6-Oct	10	11	11	10	150
9-Oct	INVALID	7	8	7	150
12-Oct	17	14	15	16	150
15-Oct	15	13	12	12	150
18-Oct	29	18	18	20	150
21-Oct	18	16	16	17	150
24-Oct	16	16	17	16	150
27-Oct	8	9	13	9	150
30-Oct	13	14	11	11	150
Monthly Average	16	14	13	14	

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.

Particulate and Lead Analysis



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P4557

Big River Site #4- Primary

Sample Date 2012	Filter ID	TSP Filter Net Wt. g		Lead Total Wt. μg		T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Mass Concentrations	
		TSP	Lead	Total	Wt.								Sample TSP μg/m ³	Lead μg/m ³
10/1/2012	8615030	0.0543	28	14	739.0	34.8	0.953	1.228	1.239	23.40	1740	31	0.016	
10/2/2012	8615021	0.0547	55	14	740.8	34.8	0.953	1.228	1.242	23.59	1757	31	0.032	
10/3/2012	8615011	0.0580	14	17	744.3	35.2	0.953	1.233	1.240	23.74	1766	33	0.008	
10/4/2012	8615001	0.0726	47	19	747.7	35.5	0.953	1.237	1.241	23.60	1757	41	0.027	
10/5/2012	8610893	0.0312	< 10	9	748.8	34.1	0.954	1.219	1.270	23.66	1803	17	0.000	
10/8/2012	8610884	0.0401	69	8	748.4	34.1	0.954	1.218	1.271	23.43	1787	22	0.039	
10/9/2012	8610874	0.0234	< 10	11	745.2	34.4	0.954	1.223	1.257	23.65	1784	13	0.000	
10/10/2012	8610865	0.0309	26	8	749.7	34.1	0.955	1.218	1.273	23.42	1788	17	0.014	
10/11/2012	8610856	0.0488	22	9	749.8	34.3	0.954	1.221	1.270	23.67	1803	27	0.012	
10/12/2012	8610846	0.0420	< 10	12	750.8	34.6	0.954	1.226	1.264	23.75	1802	23	0.000	
10/15/2012	8610836	0.0468	53	13	744.0	34.7	0.953	1.227	1.249	23.31	1747	27	0.030	
10/16/2012	8610827	0.0305	12	18	739.3	35.3	0.952	1.234	1.230	23.71	1749	17	0.007	
10/17/2012	8610817	0.0882	12	15	734.1	35.0	0.952	1.229	1.226	23.71	1745	51	0.007	
10/18/2012	8610807	0.0606	< 10	13	735.9	34.6	0.953	1.225	1.237	23.80	1767	34	0.000	
10/19/2012	8612398	0.0225	18	10	737.3	34.4	0.953	1.221	1.245	23.82	1779	13	0.010	
10/22/2012	8612388	0.0501	15	22	743.3	35.8	0.952	1.241	1.224	23.79	1748	29	0.008	
10/23/2012	8612380	0.0418	< 10	22	743.2	35.8	0.952	1.241	1.225	23.68	1740	24	0.000	
10/24/2012	8612370	0.0477	13	22	743.3	35.8	0.952	1.241	1.225	23.55	1731	28	0.007	
10/25/2012	8612360	0.0224	< 10	19	742.6	35.4	0.952	1.235	1.233	23.77	1759	13	0.000	
10/26/2012	8612352	0.0218	< 10	6	751.1	33.8	0.955	1.215	1.281	23.70	1822	12	0.000	
10/29/2012	8612341	0.0516	34	4	750.1	33.6	0.955	1.212	1.284	23.70	1826	28	0.018	
10/30/2012	8612331	0.0653	52	6	744.3	33.9	0.954	1.215	1.268	23.56	1793	36	0.029	
10/31/2012	8612321	0.0664	59	7	743.8	34.0	0.954	1.216	1.265	23.63	1794	37	0.033	

Data Captured	TSP	Lead
Valid Samples:	23	23
Scheduled Samples:	23	23
Percent Data Captured:	100%	100%

Monthly Average:	26	0.013
Standard Deviation:	10	0.013
Maximum:	51	0.039
Minimum:	12	0.000

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celsius
 P_{av} = average station pressure in millimeters of mercury
 $P_f = (((Temp\ in\ ^\circ Kelvin \ * \ Temp\ Slope)) + Temp\ Int.) * 1.868$
 $P_f = ((Temp\ in\ ^\circ Kelvin \ * 0.0664) + (-0.4213)) * 1.868$
 $P_f/P_{av} = \text{pressure ratio of } P_f \text{ and } P_{av} = 1 - P_f/P_{av}$

Q_a = look up table volumetric flow rate
 Q_{std} = total sample volumetric flow rate corrected to standard conditions
 V_{std} = total sample volume corrected to standard conditions
TSP = mass concentration in $\mu\text{g}/\text{std m}^3$
Lead = mass concentration in $\mu\text{g}/\text{std m}^3$



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P2939										National Site #1 Ozark Insulation			
Sample Date	Filter ID	TSP Filter Net Wt.	Lead Total Wt.	T _{av}	P _{av}	P _f	Ratio P _o /P _a	Q _a	Q _{std}	Elapsed Time	Sample Volume V _{std}	Mass Concentrations TSP	Lead
2012	ID	g	μg	C	mmHg	mmHg		m ³ /min	m ³ /min	hr	m ³	μg/m ³	μg/m ³
10/1/2012	8615025	0.0556	20	14	739.0	34.8	0.953	1.224	1.235	23.52	1743	32	0.011
10/2/2012	8615022	0.0507	27	14	740.8	34.8	0.953	1.224	1.238	23.61	1753	29	0.015
10/3/2012	8615006	0.0624	25	17	744.3	35.2	0.953	1.229	1.236	23.49	1742	36	0.014
10/4/2012	8610896	0.0516	27	19	747.7	35.5	0.953	1.233	1.236	23.52	1745	30	0.016
10/5/2012	8610894	0.0218	< 10	9	748.8	34.1	0.954	1.215	1.266	23.56	1790	12	0.000
10/8/2012	8610885	0.0240	19	8	748.4	34.1	0.954	1.214	1.267	23.48	1784	13	0.011
10/9/2012	8610875	0.0237	< 10	11	745.2	34.4	0.954	1.219	1.253	23.52	1769	13	0.000
10/10/2012	8610866	0.0342	11	8	749.7	34.1	0.955	1.214	1.269	23.57	1794	19	0.006
10/11/2012	8610857	0.0477	16	9	749.8	34.3	0.954	1.217	1.265	23.62	1793	27	0.009
10/12/2012	8610847	0.0374	< 10	12	750.8	34.6	0.954	1.222	1.260	23.63	1787	21	0.000
10/15/2012	8610838	0.0334	12	13	744.0	34.7	0.953	1.223	1.245	23.57	1761	19	0.007
10/16/2012	8610828	0.0497	51	18	739.3	35.3	0.952	1.230	1.226	23.60	1736	29	0.029
10/17/2012	8610812	0.0652	15	15	734.1	35.0	0.952	1.225	1.222	23.59	1730	38	0.009
10/18/2012	8610802	0.0778	< 10	13	735.9	34.6	0.953	1.221	1.233	23.06	1706	46	0.000
10/19/2012	8612393	0.0212	< 10	10	737.3	34.4	0.953	1.217	1.241	23.47	1747	12	0.000
10/22/2012	8612383	0.0618	38	22	743.3	35.8	0.952	1.237	1.220	23.46	1718	36	0.022
10/23/2012	8612381	0.0477	< 10	22	743.2	35.8	0.952	1.237	1.221	23.54	1724	28	0.000
10/24/2012	8612365	0.0527	12	22	743.3	35.8	0.952	1.237	1.221	23.52	1723	31	0.007
10/25/2012	8612355	0.0231	< 10	19	742.6	35.4	0.952	1.231	1.229	23.20	1711	14	0.000
10/26/2012	8612353	0.0191	< 10	6	751.1	33.8	0.955	1.211	1.277	23.51	1802	11	0.000
10/29/2012	8612336	0.0706	18	4	750.1	33.6	0.955	1.208	1.280	23.64	1816	39	0.010
10/30/2012	8612326	0.0538	33	6	744.3	33.9	0.954	1.211	1.264	23.58	1789	30	0.019
10/31/2012	8612316	0.0470	27	7	743.8	34.0	0.954	1.212	1.262	23.55	1783	26	0.015
Data Captured			TSP	Lead									
Valid Samples:	23	23									Monthly Average:	26	0.009
Scheduled Samples:	23	23									Standard Deviation:	10	0.008
Percent Data Captured:	100%	100%									Maximum:	46	0.029

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celsius

P_{av} = average station pressure in millimeters of mercury

P_f = (((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_o/P_a = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in μg/std m³

Lead = mass concentration in μg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P4474

National Site #2 - Soccer Field

Sample Date 2012	Filter ID	TSP Net Wt. g	Lead Total Wt. μg	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP μg/m ³	Lead μg/m ³
10/1/2012	8615026	0.0599	23	14	739.0	34.8	0.953	1.209	1.220	23.21	1699	35	0.014
10/2/2012	8615023	0.0485	34	14	740.8	34.8	0.953	1.210	1.223	23.33	1712	28	0.020
10/3/2012	8615007	0.0642	29	17	744.3	35.2	0.953	1.215	1.222	23.45	1719	37	0.017
10/4/2012	8610897	0.0671	41	19	747.7	35.5	0.953	1.219	1.222	23.50	1723	39	0.024
10/5/2012	8610895	0.0456	12	9	748.8	34.1	0.954	1.201	1.252	24.42	1834	25	0.006
10/8/2012	8610886	0.0226	26	8	748.4	34.1	0.954	1.200	1.253	23.84	1792	13	0.014
10/9/2012	8610876	0.0322	14	11	745.2	34.4	0.954	1.205	1.239	23.97	1781	18	0.008
10/10/2012	8610867	0.0248	21	8	749.7	34.1	0.955	1.200	1.254	23.70	1783	14	0.012
10/11/2012	8610858	0.0436	28	9	749.8	34.3	0.954	1.203	1.251	23.59	1771	25	0.016
10/12/2012	8610848	0.0412	22	12	750.8	34.6	0.954	1.207	1.245	24.24	1811	23	0.012
10/15/2012	8610839	0.0374	24	13	744.0	34.7	0.953	1.209	1.230	23.97	1769	21	0.014
10/16/2012	8610829	0.0514	146	18	739.3	35.3	0.952	1.215	1.211	23.75	1726	30	0.085
10/17/2012	8610813	0.0528	33	15	734.1	35.0	0.952	1.211	1.208	23.98	1739	30	0.019
10/18/2012	8610803	0.0677	21	13	735.9	34.6	0.953	1.206	1.218	23.15	1692	40	0.013
10/19/2012	8612394	0.0172	< 10	10	737.3	34.4	0.953	1.203	1.227	23.89	1758	10	0.000
10/22/2012	8612384	0.0794	89	22	743.3	35.8	0.952	1.224	1.207	23.73	1719	46	0.052
10/23/2012	8612382	0.0694	49	22	743.2	35.8	0.952	1.223	1.207	23.73	1719	40	0.029
10/24/2012	8612366	0.0660	40	22	743.3	35.8	0.952	1.223	1.208	23.63	1712	39	0.024
10/25/2012	8612356	0.0245	10	19	742.6	35.4	0.952	1.217	1.215	23.22	1693	14	0.006
10/26/2012	8612354	0.0726	21	6	751.1	33.8	0.955	1.197	1.263	23.65	1792	40	0.012
10/29/2012	8612337	0.0408	11	4	750.1	33.6	0.955	1.194	1.265	23.76	1804	23	0.006
10/30/2012	8612327	0.0437	12	6	744.3	33.9	0.954	1.197	1.250	23.75	1781	25	0.007
10/31/2012	8612317	0.0403	29	7	743.8	34.0	0.954	1.198	1.247	23.65	1769	23	0.017

Data Captured	TSP	Lead
Valid Samples:	23	23
Scheduled Samples:	23	23
Percent Data Captured:	100%	100%

Monthly Average:	28	0.018
Standard Deviation:	10	0.018
Maximum:	46	0.085
Minimum:	10	0.000

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

P_f = (((Temp in °Kelvin * Temp Slope))+Temp Int.))*1.868

P_t = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_f/P_{av} = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in μg/std m³

Lead = mass concentration in μg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P4475

National Site Water Plant #3

Sample Date 2012	Filter ID	TSP		Lead		Ratio P_f/P_a	Q_a m³/min	Q_{std} m³/min	Elapsed Time hr	Sample Volume V_{std} m³	Mass Concentrations	
		Filter Net Wt. g	Total Wt. μg	T _{av} C	P _{av} mmHg						TSP μg/m³	Lead μg/m³
10/1/2012	8615028	0.0392	29	14	739.0	34.8	0.953	1.214	1.225	23.28	1711	23 0.017
10/2/2012	8615019	0.0387	18	14	740.8	34.8	0.953	1.214	1.227	23.62	1740	22 0.010
10/3/2012	8615009	0.0547	13	17	744.3	35.2	0.953	1.220	1.226	23.60	1737	31 0.008
10/4/2012	8610899	0.0631	26	19	747.7	35.5	0.953	1.224	1.227	23.75	1749	36 0.015
10/5/2012	8610891	0.0208	< 10	9	748.8	34.1	0.954	1.205	1.256	23.74	1789	12 0.000
10/8/2012	8610882	0.0149	< 10	8	748.4	34.1	0.954	1.204	1.257	23.55	1777	8 0.000
10/9/2012	8610872	0.0208	< 10	11	745.2	34.4	0.954	1.210	1.243	23.59	1760	12 0.000
10/10/2012	8610863	0.0178	16	8	749.7	34.1	0.955	1.205	1.259	23.74	1793	10 0.009
10/11/2012	8610853	0.0337	< 10	9	749.8	34.3	0.954	1.207	1.256	23.73	1788	19 0.000
10/12/2012	8610844	0.0363	< 10	12	750.8	34.6	0.954	1.212	1.250	23.75	1782	20 0.000
10/15/2012	8610834	0.0366	41	13	744.0	34.7	0.953	1.213	1.235	23.41	1734	21 0.023
10/16/2012	8610825	0.0309	< 10	18	739.3	35.3	0.952	1.220	1.216	23.78	1735	18 0.000
10/17/2012	8610815	0.0825	19	15	734.1	35.0	0.952	1.216	1.213	23.67	1722	48 0.011
10/18/2012	8610805	0.0712	15	13	735.9	34.6	0.953	1.211	1.223	23.74	1743	41 0.008
10/19/2012	8612396	0.0217	60	10	737.3	34.4	0.953	1.208	1.231	23.72	1752	12 0.034
10/22/2012	8612386	0.0514	< 10	22	743.3	35.8	0.952	1.228	1.211	23.74	1726	30 0.000
10/23/2012	8612378	0.0439	< 10	22	743.2	35.8	0.952	1.228	1.212	23.70	1723	26 0.000
10/24/2012	8612368	0.0464	< 10	22	743.3	35.8	0.952	1.228	1.212	23.51	1710	27 0.000
10/25/2012	8612358	0.0300	44	19	742.6	35.4	0.952	1.222	1.220	23.75	1738	17 0.025
10/26/2012	8612350	0.0191	< 10	6	751.1	33.8	0.955	1.202	1.267	23.70	1802	11 0.000
10/29/2012	8612339	0.0399	34	4	750.1	33.6	0.955	1.199	1.270	23.75	1810	22 0.019
10/30/2012	8612329	0.0661	148	6	744.3	33.9	0.954	1.202	1.254	23.67	1782	37 0.083
10/31/2012	8612319	0.0379	69	7	743.8	34.0	0.954	1.203	1.252	23.66	1777	21 0.039

Data Captured	TSP	Lead
Valid Samples:	23	23
Scheduled Samples:	23	23
Percent Data Captured:	100%	100%

Monthly Average:	23	0.013
Standard Deviation:	11	0.019
Maximum:	48	0.083
Minimum:	8	0.000

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

P_f = (((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_f/P_a = pressure ratio of P_f and P_{av} = $1 - P_f/P_{av}$

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in $\mu\text{g}/\text{std m}^3$

Lead = mass concentration in $\mu\text{g}/\text{std m}^3$



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P6609

Big River Site #4 - QA

Sample Date 2012	Filter ID	TSP		Lead		Ratio P_f/P_a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations	
		Filter Net Wt. g	Total Wt. μg	T _{av} C	P _{av} mmHg						TSP μg/m ³	Lead μg/m ³
10/2/2012	8615031	0.0546	52	14	740.8	34.8	0.953	1.219	1.233	23.56	1742	31 0.030
10/4/2012	8615002	0.0661	45	19	747.7	35.5	0.953	1.228	1.232	23.62	1746	38 0.026
10/9/2012	8610877	0.0225	11	11	745.2	34.4	0.954	1.214	1.248	23.49	1759	13 0.006
10/11/2012	8610855	0.0452	20	9	749.8	34.3	0.954	1.212	1.261	23.16	1752	26 0.011
10/16/2012	8610837	0.0297	< 10	18	739.3	35.3	0.952	1.225	1.221	23.64	1732	17 0.000
10/18/2012	8610808	0.0711	10	13	735.9	34.6	0.953	1.216	1.228	23.61	1740	41 0.006
10/23/2012	8612389	0.0431	< 10	22	743.2	35.8	0.952	1.233	1.217	23.50	1716	25 0.000
10/25/2012	8612361	0.0237	11	19	742.6	35.4	0.952	1.227	1.225	23.62	1736	14 0.006
10/30/2012	8612342	0.0627	46	6	744.3	33.9	0.954	1.206	1.259	23.59	1782	35 0.026

Valid Samples:	9	9
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Monthly Average:	27	0.012
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Scheduled Samples:	9	9
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Standard Deviation:	10	0.012
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Percent Data Captured:	100%	100%
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Maximum:	41	0.030
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Minimum:	13	0.000
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NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

Q_a = look up table volumetric flow rate

P_{av} = average station pressure in millimeters of mercury

Q_{std} = total sample volumetric flow rate corrected to standard conditions

P_f = (((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868

V_{std} = total sample volume corrected to standard conditions

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

TSP = mass concentration in μg/std m³

P_f/P_a = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Lead = mass concentration in μg/std m³



PM₁₀ Analysis

The Doe Run Company

SAMPLER ID P2952										Big River Site #4- Primary												
Sample Date 2012	Filter ID	Net Wt. g	PM10				Ratio P_o/P_a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ μg/m ³										
			T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P_o/P_a																
10/3/2012	280959	0.0331	17	744.3	35.2	0.953	1.139	1.145	23.65	1625	20											
10/6/2012	280948	0.0170	5	750.5	33.7	0.955	1.121	1.184	23.70	1684	10											
10/9/2012	280939	0.0211	11	745.2	34.4	0.954	1.130	1.161	6.89	480	INVALID											
10/12/2012	280932	0.0288	12	750.8	34.6	0.954	1.132	1.168	23.64	1657	17											
10/15/2012	280919	0.0253	13	744.0	34.7	0.953	1.133	1.154	23.66	1638	15											
10/18/2012	280910	0.0466	13	735.9	34.6	0.953	1.131	1.143	23.69	1624	29											
10/21/2012	280901	0.0297	18	742.8	35.3	0.952	1.141	1.140	23.67	1619	18											
10/24/2012	290292	0.0251	22	743.3	35.8	0.952	1.147	1.132	23.64	1606	16											
10/27/2012	290281	0.0143	5	750.8	33.6	0.955	1.120	1.187	23.72	1689	8											
10/30/2012	290273	0.0218	6	744.3	33.9	0.954	1.122	1.172	23.64	1662	13											
Valid Samples: 9																						
Scheduled Samples: 10																						
Percent Data Captured: 90%																						
Monthly Average: 16																						
Standard Deviation: 6																						
Maximum: 29																						
Minimum: 8																						
NOTES																						
10/9/2012 - INVALID - Elapsed time indicator failed																						
DEFINITIONS and CALCULATIONS																						
T _{av} = average temperature in degrees Celcius																						
P _{av} = average station pressure in millimeters of mercury																						
P _f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868																						
P _t = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868																						
P _o /P _a = pressure ratio of P _f and P _{av} = 1 - P _f /P _{av}																						
Q _a = look up table volumetric flow rate																						
Q _{std} = sample volumetric flow rate corrected to standard conditions																						
V _{std} = sample volume corrected to standard conditions																						



PM₁₀ Analysis

The Doe Run Company

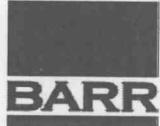
SAMPLER ID P2950										National Site #1 Ozark Insulation													
Sample Date 2012	Filter ID	PM10 Filter Net Wt.		T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ µg/m ³											
		g	C																				
10/3/2012	280964	0.0310	17	744.3	35.2	0.953	1.137	1.143	23.70	1625	19												
10/6/2012	280953	0.0190	5	750.5	33.7	0.955	1.119	1.182	23.72	1683	11												
10/9/2012	280944	0.0113	11	745.2	34.4	0.954	1.127	1.159	23.75	1652	7												
10/12/2012	280933	0.0237	12	750.8	34.6	0.954	1.130	1.165	23.65	1654	14												
10/15/2012	280917	0.0209	13	744.0	34.7	0.953	1.131	1.151	23.72	1638	13												
10/18/2012	280915	0.0290	13	735.9	34.6	0.953	1.129	1.140	23.62	1616	18												
10/21/2012	280906	0.0266	18	742.8	35.3	0.952	1.138	1.138	23.71	1618	16												
10/24/2012	290297	0.0251	22	743.3	35.8	0.952	1.144	1.130	23.70	1606	16												
10/27/2012	290280	0.0147	5	750.8	33.6	0.955	1.118	1.185	23.70	1685	9												
10/30/2012	290278	0.0226	6	744.3	33.9	0.954	1.120	1.169	23.77	1668	14												
Valid Samples: 10												Monthly Average: 14											
Scheduled Samples: 10												Standard Deviation: 4											
Percent Data Captured: 100%												Maximum: 19											
												Minimum: 7											
NOTES																							
DEFINITIONS and CALCULATIONS																							
T _{av} = average temperature in degrees Celcius	P _o /P _a = pressure ratio of P _f and P _{av} = 1 - P _f /P _{av}																						
P _{av} = average station pressure in millimeters of mercury	Q _a = look up table volumetric flow rate																						
P _f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868	Q _{std} = sample volumetric flow rate corrected to standard conditions																						
P _f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868	V _{std} = sample volume corrected to standard conditions																						



PM₁₀ Analysis

The Doe Run Company

National Site #2 - Soccer Field																			
Sampler ID P2949																			
Sample Date 2012	Filter ID	PM10 Filter Net Wt.		T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _o /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ µg/m ³							
		10/3/2012	280963	0.0219	17	744.3	35.2	0.953	1.134	1.140	23.70	1621	13						
10/6/2012	280952	0.0182	5	750.5	33.7	0.955	1.116	1.179	23.74	1680	11								
10/9/2012	280943	0.0126	11	745.2	34.4	0.954	1.125	1.156	23.66	1641	8								
10/12/2012	280934	0.0250	12	750.8	34.6	0.954	1.127	1.163	23.75	1657	15								
10/15/2012	280916	0.0203	13	744.0	34.7	0.953	1.128	1.148	23.70	1633	12								
10/18/2012	280914	0.0287	13	735.9	34.6	0.953	1.126	1.138	23.74	1620	18								
10/21/2012	280905	0.0261	18	742.8	35.3	0.952	1.135	1.135	23.70	1613	16								
10/24/2012	290296	0.0266	22	743.3	35.8	0.952	1.142	1.127	23.71	1603	17								
10/27/2012	290279	0.0213	5	750.8	33.6	0.955	1.115	1.182	23.71	1681	13								
10/30/2012	290277	0.0178	6	744.3	33.9	0.954	1.117	1.166	23.67	1656	11								
Valid Samples: 10								Monthly Average: 13											
Scheduled Samples: 10								Standard Deviation: 3											
Percent Data Captured: 100%								Maximum: 18											
								Minimum: 8											
NOTES																			
DEFINITIONS and CALCULATIONS																			
T _{av} = average temperature in degrees Celcius																			
P _{av} = average station pressure in millimeters of mercury																			
P _f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868																			
P _t = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868																			
P _o /P _a = pressure ratio of P _f and P _{av} = 1 - P _f /P _{av}																			
Q _a = look up table volumetric flow rate																			
Q _{std} = sample volumetric flow rate corrected to standard conditions																			
V _{std} = sample volume corrected to standard conditions																			



PM₁₀ Analysis

The Doe Run Company

National Site #3 - Water Plant																					
Sample Date	Filter ID	PM10 Filter Net Wt. g	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ µg/m ³										
10/3/2012	280961	0.0316	17	744.3	35.2	0.953	1.140	1.147	23.43	1612	20										
10/6/2012	280950	0.0173	5	750.5	33.7	0.955	1.122	1.186	23.47	1670	10										
10/9/2012	280941	0.0121	11	745.2	34.4	0.954	1.131	1.163	23.44	1635	7										
10/12/2012	280930	0.0265	12	750.8	34.6	0.954	1.133	1.169	23.45	1645	16										
10/15/2012	280921	0.0198	13	744.0	34.7	0.953	1.134	1.155	23.47	1626	12										
10/18/2012	280912	0.0327	13	735.9	34.6	0.953	1.132	1.144	23.42	1607	20										
10/21/2012	280903	0.0272	18	742.8	35.3	0.952	1.142	1.141	23.49	1608	17										
10/24/2012	290294	0.0260	22	743.3	35.8	0.952	1.148	1.133	23.42	1592	16										
10/27/2012	290283	0.0145	5	750.8	33.6	0.955	1.121	1.189	23.47	1674	9										
10/30/2012	290275	0.0181	6	744.3	33.9	0.954	1.124	1.173	23.46	1651	11										
Valid Samples:	10																				
Scheduled Samples:	10																				
Percent Data Captured:	100%																				
NOTES																					
DEFINITIONS and CALCULATIONS																					
T _{av} = average temperature in degrees Celcius																					
P _{av} = average station pressure in millimeters of mercury																					
P _f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868																					
P _f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868																					
P _f /P _a = pressure ratio of P _f and P _{av} = 1 - P _f /P _{av}																					
Q _a = look up table volumetric flow rate																					
Q _{std} = sample volumetric flow rate corrected to standard conditions																					
V _{std} = sample volume corrected to standard conditions																					



PM₁₀ Analysis

The Doe Run Company

Lab Results (Lead and Cadmium)



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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-1047
Date Received: 10/19/12
Analysis Method: 40 CFR §50
Appendix G

Location	National
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Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
125110	8615028	10/01/12	#3 East - WTP	29	< 10	10/23/12 - DS
125113	8615019	10/02/12	#3 East - WTP	18	< 10	10/23/12 - DS
125116	8615009	10/03/12	#3 East - WTP	13	< 10	10/23/12 - DS
125119	8610899	10/04/12	#3 East - WTP	26	< 10	10/23/12 - DS
125122	8610891	10/05/12	#3 East - WTP	< 10	< 10	10/23/12 - DS
125138	8615025	10/01/12	#1 Ozark	20	< 10	10/23/12 - DS
125139	8615026	10/01/12	#2 Soccer	23	< 10	10/23/12 - DS
125140	8615022	10/02/12	#1 Ozark	27	< 10	10/23/12 - DS
125141	8615023	10/02/12	#2 Soccer	34	< 10	10/24/12 - DS
125142	8615006	10/03/12	#1 Ozark	25	< 10	10/24/12 - DS
125143	8615007	10/03/12	#2 Soccer	29	< 10	10/24/12 - DS
125144	8610896	10/04/12	#1 Ozark	27	< 10	10/24/12 - DS
125145	8610897	10/04/12	#2 Soccer	41	< 10	10/24/12 - DS
125146	8610894	10/05/12	#1 Ozark	< 10	< 10	10/24/12 - DS
125147	8610895	10/05/12	#2 Soccer	12	< 10	10/24/12 - DS

Submitted by:

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10/25/12

Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-1065
Date Received: 10/25/12
Analysis Method: 40 CFR §50
Appendix G

Location	National
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Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
125233	8610882	10/08/12	#3 East - WTP	< 10	< 10	10/26/12 - DS
125236	8610872	10/09/12	#3 East - WTP	< 10	< 10	10/26/12 - DS
125239	8610863	10/10/12	#3 East - WTP	16	< 10	10/26/12 - DS
125242	8610853	10/11/12	#3 East - WTP	< 10	< 10	10/26/12 - DS
125245	8610844	10/12/12	#3 East - WTP	< 10	< 10	10/26/12 - DS
125261	8610885	10/08/12	#1 Ozark	19	< 10	10/26/12 - DS
125262	8610886	10/08/12	#2 Soccer	26	< 10	10/26/12 - DS
125263	8610875	10/09/12	#1 Ozark	< 10	< 10	10/26/12 - DS
125264	8610876	10/09/12	#2 Soccer	14	< 10	10/26/12 - DS
125265	8610866	10/10/12	#1 Ozark	11	< 10	10/26/12 - DS
125266	8610867	10/10/12	#2 Soccer	21	< 10	10/26/12 - DS
125267	8610857	10/11/12	#1 Ozark	16	< 10	10/26/12 - DS
125268	8610858	10/11/12	#2 Soccer	28	< 10	10/26/12 - DS
125269	8610847	10/12/12	#1 Ozark	< 10	< 10	10/26/12 - DS
125270	8610848	10/12/12	#2 Soccer	22	< 10	10/26/12 - DS

Submitted by:

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10/30/12

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-1086
Date Received: 11/02/12
Analysis Method: 40 CFR §50
Appendix G

Location **National**

Lab. No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
125337	8610834	10/15/12	#3 East - WTP	41	< 10	11/07/12 - DS
125340	8610825	10/16/12	#3 East - WTP	< 10	< 10	11/06/12 - DS
125343	8610815	10/17/12	#3 East - WTP	19	< 10	11/06/12 - DS
125346	8610805	10/18/12	#3 East - WTP	15	< 10	11/06/12 - DS
125349	8612396	10/19/12	#3 East - WTP	60	< 10	11/07/12 - DS
125365	8610838	10/15/12	#1 Ozark	12	< 10	11/06/12 - DS
125366	8610839	10/15/12	#2 Soccer	24	< 10	11/06/12 - DS
125367	8610828	10/16/12	#1 Ozark	51	< 10	11/06/12 - DS
125368	8610829	10/16/12	#2 Soccer	146	< 10	11/06/12 - DS
125369	8610812	10/17/12	#1 Ozark	15	< 10	11/06/12 - DS
125370	8610813	10/17/12	#2 Soccer	33	< 10	11/06/12 - DS
125371	8610802	10/18/12	#1 Ozark	< 10	< 10	11/06/12 - DS
125372	8610803	10/18/12	#2 Soccer	21	< 10	11/06/12 - DS
125373	8612393	10/19/12	#1 Ozark	< 10	< 10	11/06/12 - DS
125374	8612394	10/19/12	#2 Soccer	< 10	< 10	11/06/12 - DS

Submitted by: _____

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-1117
Date Received: 11/13/12
Analysis Method: 40 CFR §50
Appendix G

Location **National**

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
125522	8612383	10/22/12	#1 Ozark	38	< 10	11/19/12 - DS
125523	8612384	10/22/12	#2 Soccer	89	< 10	11/19/12 - DS
125524	8612381	10/23/12	#1 Ozark	< 10	< 10	11/19/12 - DS
125525	8612382	10/23/12	#2 Soccer	49	< 10	11/19/12 - DS
125526	8612365	10/24/12	#1 Ozark	12	< 10	11/19/12 - DS
125527	8612366	10/24/12	#2 Soccer	40	< 10	11/19/12 - DS
125528	8612355	10/25/12	#1 Ozark	< 10	< 10	11/16/12 - DS
125529	8612356	10/25/12	#2 Soccer	10	< 10	11/16/12 - DS
125530	8612353	10/26/12	#1 Ozark	< 10	< 10	11/16/12 - DS
125531	8612354	10/26/12	#2 Soccer	21	< 10	11/16/12 - DS
125532	8612336	10/29/12	#1 Ozark	18	< 10	11/16/12 - DS
125533	8612337	10/29/12	#2 Soccer	11	< 10	11/16/12 - DS
125534	8612326	10/30/12	#1 Ozark	33	< 10	11/16/12 - DS
125535	8612327	10/30/12	#2 Soccer	12	< 10	11/16/12 - DS
125536	8612316	10/31/12	#1 Ozark	27	< 10	11/16/12 - DS
125537	8612317	10/31/12	#2 Soccer	29	< 10	11/16/12 - DS

Digitally signed by Jennifer
Vandelicht
DN: cn=Jennifer.Vandelicht,
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ou=Quality Assurance,
email=jvandelicht@inovatia.
com, c=US
Date: 2012.11.20 14:03:50
-06'00'

Submitted by: _____

11/20/12

Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-1047
Date Received: 10/19/12
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab. No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
125101	8615030	10/01/12	#4 Primary	28	< 10	10/23/12 - DS
125102	8615021	10/02/12	#4 Primary	55	< 10	10/23/12 - DS
125103	8615031	10/02/12	#4 QA	52	< 10	10/23/12 - DS
125104	8615011	10/03/12	#4 Primary	14	< 10	10/23/12 - DS
125105	8615001	10/04/12	#4 Primary	47	< 10	10/23/12 - DS
125106	8615002	10/04/12	#4 QA	45	< 10	10/23/12 - DS
125107	8610893	10/05/12	#4 Primary	< 10	< 10	10/23/12 - DS

Submitted by:

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Vandieck
DR Jennifer Vandieck,
Inovatia Laboratories, LLC,
EnviroQuality Assurance,
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com, certUS
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Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-1065**Date Received:** 10/25/12**Analysis Method:** 40 CFR §50
Appendix G**Location**

Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date Analyst
125224	8610884	10/08/12	#4 Primary	69	< 10	10/26/12 - DS
125225	8610874	10/09/12	#4 Primary	< 10	< 10	10/26/12 - DS
125226	8610877	10/09/12	#4 QA	11	< 10	10/26/12 - DS
125227	8610865	10/10/12	#4 Primary	26	< 10	10/26/12 - DS
125228	8610856	10/11/12	#4 Primary	22	< 10	10/26/12 - DS
125229	8610855	10/11/12	#4 QA	20	< 10	10/26/12 - DS
125230	8610846	10/12/12	#4 Primary	< 10	< 10	10/26/12 - DS

Digital signature by Jennifer Vandebach
DTE: jennifer.vandebach@inovatia.com
inovatia Laboratories, LLC
jen.vandebach@inovatia.com
caUS
Date: 2012/10/30 10:23:19 -05'00'

Submitted by:

10/30/12

Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-1086
Date Received: 11/02/12
Analysis Method: 40 CFR §50
Appendix G

Location

Big River

Lab. No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
125328	8610836	10/15/12	#4 Primary	53	< 10	11/07/12 - DS
125329	8610827	10/16/12	#4 Primary	12	< 10	11/07/12 - DS
125330	8610837	10/16/12	#4 QA	< 10	< 10	11/07/12 - DS
125331	8610817	10/17/12	#4 Primary	12	< 10	11/07/12 - DS
125332	8610807	10/18/12	#4 Primary	< 10	< 10	11/07/12 - DS
125333	8610808	10/18/12	#4 QA	10	< 10	11/07/12 - DS
125334	8612398	10/19/12	#4 Primary	18	< 10	11/07/12 - DS

Submitted by:

Jenny J. Harrelson
Digitally signed by Jenny J. Harrelson
Date 2012.11.08 09:33:14 -05'00'

11/8/12

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-1116**Date Received:** 11/13/12**Analysis Method:** 40 CFR §50
Appendix G**Location:** Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date	Analyst
125463	8612388	10/22/12	#4 Primary	15	< 10	11/16/12 - DS	
125464	8612380	10/23/12	#4 Primary	< 10	< 10	11/16/12 - DS	
125465	8612389	10/23/12	#4 QA	< 10	< 10	11/16/12 - DS	
125466	8612370	10/24/12	#4 Primary	13	< 10	11/16/12 - DS	
125467	8612360	10/25/12	#4 Primary	< 10	< 10	11/16/12 - DS	
125468	8612361	10/25/12	#4 QA	11	< 10	11/16/12 - DS	
125469	8612352	10/26/12	#4 Primary	< 10	< 10	11/16/12 - DS	
125470	8612341	10/29/12	#4 Primary	34	< 10	11/16/12 - DS	
125471	8612331	10/30/12	#4 Primary	52	< 10	11/16/12 - DS	
125472	8612342	10/30/12	#4 QA	46	< 10	11/16/12 - DS	
125473	8612321	10/31/12	#4 Primary	59	< 10	11/16/12 - DS	

Digitally signed by Jennifer
Vandelicht
DN: cn=Jennifer Vandelicht,
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ou=Quality Assurance,
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com, c=US
Date: 2012.11.20 14:05:48
-06'00'

Submitted by: _____

11/20/12

Date

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Meteorological Data

Meteorological Report
The Doe Run Company
Wind Speed

Site Name: Rivermines

Average Interval: 01 Hour

Units: mph

Sampling Frequency: 01 Second

2012	Hour	24 Hour Avg																								
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1-Oct	0.3	0.1	0.1	0.0	0.1	0.1	0.0	3.1	3.9	4.2	5.3	6.9	7.6	9.0	8.2	8.2	6.3	4.4	4.6	4.0	2.9	1.9	2.6	0.3	9.0	3.5
2-Oct	0.4	0.3	0.6	0.2	0.4	0.2	0.2	1.9	4.9	6.3	7.6	7.3	6.7	5.5	3.7	3.7	0.2	0.4	0.2	0.1	0.2	0.2	0.3	2.5	7.6	2.2
3-Oct	0.2	0.1	0.2	0.1	0.0	0.2	0.2	0.7	0.9	0.9	2.3	2.5	4.3	3.9	4.7	3.5	2.4	1.6	0.1	0.2	0.1	0.1	0.0	4.7	1.2	
4-Oct	0.2	0.1	0.2	0.0	0.0	0.1	0.1	0.8	2.7	4.5	6.7	8.1	8.0	6.1	5.4	5.5	4.0	2.6	2.2	1.9	2.1	2.5	6.7	5.0	8.1	3.1
5-Oct	3.0	3.0	2.2	3.3	2.8	2.0	5.6	2.7	4.2	5.0	6.2	5.8	5.0	6.3	7.6	5.7	8.7	6.6	4.4	3.3	3.5	3.2	3.8	0.3	8.7	4.3
6-Oct	0.2	0.6	0.2	0.5	0.1	0.0	0.0	0.2	0.6	0.8	2.0	3.4	5.1	5.7	5.4	5.4	3.5	0.4	0.1	0.1	1.1	3.6	4.3	3.9	5.7	2.0
7-Oct	1.6	3.6	3.5	1.6	0.7	0.0	0.0	1.8	5.5	7.6	5.7	4.6	4.7	4.4	3.8	3.3	2.5	0.2	0.2	0.1	0.3	0.1	0.2	7.6	2.3	
8-Oct	0.1	0.2	0.2	0.0	0.2	0.1	0.3	0.3	0.6	1.8	3.8	4.6	4.5	4.8	5.7	5.8	5.5	3.1	3.4	2.4	0.2	0.0	0.0	0.0	5.8	2.0
9-Oct	0.0	0.0	0.2	0.2	0.0	0.0	0.1	1.4	6.0	7.7	8.5	8.2	7.6	8.1	7.1	6.9	6.9	4.1	2.9	1.7	1.1	0.7	0.1	1.0	8.5	3.4
10-Oct	9.9	4.7	2.7	0.1	0.2	1.0	2.6	4.9	6.3	6.7	8.4	6.5	4.3	4.0	4.0	3.2	1.8	0.1	0.4	0.1	0.2	0.2	0.1	0.1	9.9	3.0
11-Oct	0.1	0.0	0.0	0.1	0.5	0.2	0.4	3.4	5.4	5.1	4.9	7.0	5.8	6.8	6.2	4.6	4.8	4.1	4.1	1.9	2.6	1.7	0.1	0.1	7.0	2.9
12-Oct	0.4	0.7	0.6	0.6	0.7	1.6	1.8	2.5	3.5	3.3	2.6	2.6	2.6	1.9	1.6	0.8	0.1	0.4	0.1	0.1	0.1	0.2	1.0	1.7	3.5	1.4
13-Oct	4.8	5.3	5.3	5.0	2.8	4.4	5.2	5.4	7.8	8.4	9.2	8.9	10.9	10.4	8.8	8.5	8.0	5.9	4.2	6.3	10.8	12.9	11.7	13.1	13.1	7.7
14-Oct	7.5	3.5	4.4	8.8	9.9	9.6	11.6	11.2	12.2	13.5	14.0	11.5	10.0	8.4	5.7	4.6	3.5	1.2	0.4	0.0	1.3	1.5	0.4	0.4	14.0	6.5
15-Oct	0.1	1.0	0.7	1.0	1.3	0.7	0.9	1.1	1.7	1.6	2.7	2.9	3.8	4.8	3.2	0.9	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	4.8	1.2
16-Oct	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.7	5.4	6.1	8.1	9.3	10.0	10.1	9.9	9.6	8.0	7.6	9.6	9.7	10.7	10.3	9.6	10.7	5.6
17-Oct	8.9	8.4	7.2	5.0	8.3	6.8	8.1	10.5	9.7	9.3	10.4	9.6	10.9	10.4	6.7	8.2	8.1	2.5	1.9	3.7	4.4	1.8	2.8	2.4	10.9	6.9
18-Oct	2.8	2.6	3.7	3.8	3.6	3.5	1.3	4.2	5.0	6.1	8.3	9.8	10.1	9.8	10.0	9.4	7.2	5.7	5.6	5.9	4.9	3.1	1.4	3.4	10.1	5.5
19-Oct	2.5	3.8	5.6	3.2	4.4	4.3	4.5	5.0	5.5	6.5	6.2	5.0	5.4	5.4	4.9	4.5	4.8	3.2	1.1	0.7	1.3	0.8	0.9	0.3	6.5	3.7
20-Oct	0.0	0.1	0.1	0.1	0.5	0.0	0.2	0.3	0.8	1.0	1.6	2.0	2.6	2.7	3.1	1.8	2.4	1.0	3.0	3.0	2.9	0.6	0.2	0.0	3.1	1.2
21-Oct	1.3	2.0	0.5	0.2	0.0	0.4	0.8	1.3	3.2	4.4	3.7	5.0	7.0	7.8	7.3	6.8	7.7	4.0	2.1	2.7	5.5	5.4	5.4	7.0	7.8	3.8
22-Oct	4.8	3.8	2.2	2.5	4.9	4.3	4.7	7.6	9.2	9.8	12.2	13.0	12.5	12.4	11.4	10.0	8.2	6.5	9.1	9.4	8.4	7.0	7.2	9.0	13.0	7.9
23-Oct	7.9	5.7	5.9	7.0	6.7	6.7	4.9	7.0	4.5	3.0	8.0	8.4	11.0	9.9	11.2	10.4	8.7	6.4	7.1	6.2	8.5	8.0	7.2	7.1	11.2	7.4
24-Oct	4.0	4.5	3.5	2.6	0.3	0.6	4.0	4.9	5.2	7.2	9.7	10.6	9.3	9.7	10.1	9.9	8.7	7.3	6.9	6.3	7.2	8.7	9.3	9.5	10.6	6.7
25-Oct	10.6	12.4	12.9	10.6	8.9	9.7	8.5	11.2	10.4	11.1	13.8	13.2	13.6	11.9	11.9	9.1	9.1	9.9	7.5	10.0	11.7	9.9	8.9	7.7	13.8	10.6
26-Oct	8.0	10.5	11.1	9.8	9.0	10.2	9.0	9.3	9.1	8.8	10.4	9.3	10.7	10.5	9.2	10.0	9.3	6.8	4.8	5.3	5.7	5.2	3.7	4.0	11.1	8.3
27-Oct	4.3	4.7	3.1	1.5	2.3	4.8	3.1	5.4	6.1	6.3	6.5	7.4	8.3	7.9	8.0	7.5	7.3	4.2	5.2	1.3	1.8	3.1	0.5	0.4	8.3	4.6
28-Oct	0.5	0.4	2.7	1.1	2.0	2.0	3.7	4.9	5.1	8.1	8.8	8.9	8.8	8.8	8.1	8.8	7.9	4.9	0.9	0.0	0.3	0.1	0.1	0.3	8.9	4.1
29-Oct	1.3	0.4	0.0	0.1	0.2	0.3	0.3	1.1	3.7	5.2	5.1	5.0	6.4	7.0	8.0	6.7	6.0	2.6	0.2	0.0	0.1	0.0	0.0	0.1	8.0	2.5
30-Oct	0.2	0.7	0.9	0.2	0.1	1.2	2.3	3.9	11.2	11.8	11.4	10.0	9.9	10.7	10.1	11.6	6.9	3.0	0.4	0.3	0.2	0.7	0.9	0.9	11.8	4.6
31-Oct	0.4	0.2	0.1	0.2	0.2	0.1	0.9	5.2	5.5	7.3	8.3	7.7	9.5	6.9	6.4	3.6	0.6	0.4	0.2	0.3	0.1	0.0	0.8	9.5	2.7	

	Maximum Hour//Monthly Average	14.0
	Total Hours in Month	744
	Valid Hours//Percent Data Captured	744 100.0%

Meteorological Report
The Doe Run Company
Wind Direction

Site Name: Rivermines

Average Interval: 01 Hour

Units: Degrees

Sampling Frequency: 01 Second

2012	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	24 Hour Avg
Day		196	192	186	178	194	213	352	347	356	354	2	3	358	354	357	344	329	339	326	323	318	323	296	268	
1-Oct	201	196	192	186	178	194	213	352	347	356	354	2	3	358	354	357	344	329	339	326	323	318	323	296	268	
2-Oct	202	249	226	270	240	270	253	317	327	341	341	332	336	327	310	311	201	181	184	192	194	165	178	186	256	
3-Oct	209	148	179	171	209	166	161	165	191	226	242	216	221	196	227	209	206	190	191	198	177	181	179	77	189	
4-Oct	132	168	176	166	0	209	256	237	232	220	214	212	207	225	225	210	209	188	187	193	191	352	348	358	213	
5-Oct	352	348	337	354	10	26	6	27	19	16	10	6	14	359	353	360	354	352	355	339	327	322	332	337	221	
6-Oct	330	338	341	324	174	344	186	310	305	341	353	332	324	339	335	325	321	284	265	268	299	321	328	329	309	
7-Oct	320	317	320	314	300	191	321	301	326	344	333	333	325	350	331	336	350	37	177	193	195	206	212	206	277	
8-Oct	190	217	195	187	195	173	211	240	299	251	220	219	226	208	210	213	210	185	182	186	190	211	350	190	215	
9-Oct	157	164	351	75	158	181	345	218	214	212	200	193	196	194	199	194	199	185	183	175	220	248	225	311	208	
10-Oct	331	324	317	296	221	295	320	327	341	348	339	352	331	322	326	316	306	288	175	176	170	174	198	186	282	
11-Oct	202	339	183	301	340	329	349	189	181	186	185	197	211	204	201	198	195	185	185	177	200	222	222	201	224	
12-Oct	291	322	341	219	242	19	7	14	13	29	44	61	55	64	78	74	92	132	79	172	118	167	158	177	124	
13-Oct	177	178	184	190	201	189	198	195	185	190	195	212	199	208	196	198	192	184	175	178	182	190	192	196	191	
14-Oct	227	245	167	162	188	192	198	205	201	207	215	223	241	243	266	265	259	296	215	217	277	270	271	209	227	
15-Oct	208	221	235	226	232	238	243	251	246	246	277	285	324	341	340	12	55	94	178	171	163	167	0	67	201	
16-Oct	103	0	210	311	156	332	166	274	202	213	226	226	215	215	210	207	201	196	191	192	196	198	200	204	202	
17-Oct	200	192	192	187	194	195	200	198	196	197	206	205	198	198	198	190	216	255	226	268	297	253	230	255	214	
18-Oct	251	235	221	226	231	232	249	248	244	244	244	245	244	241	241	238	238	228	217	226	232	232	263	250	239	
19-Oct	242	253	261	270	267	265	261	262	268	264	280	275	269	276	282	272	270	271	262	234	235	226	232	260		
20-Oct	0	237	173	179	229	190	174	360	263	235	283	289	260	252	225	203	118	134	156	165	179	149	128	55	193	
21-Oct	164	158	138	194	178	128	151	178	183	184	174	147	162	169	181	167	184	183	154	161	174	181	187	192	170	
22-Oct	194	182	163	151	190	194	192	198	189	196	195	195	192	189	193	201	198	182	186	191	200	202	206	204	191	
23-Oct	208	217	211	204	213	228	215	210	175	167	186	188	197	198	190	203	188	176	182	189	194	192	198	197		
24-Oct	207	183	180	192	79	192	225	212	200	197	203	196	200	202	196	188	183	183	181	183	185	192	189	191	189	
25-Oct	191	189	192	189	196	196	193	190	193	206	210	203	205	203	201	201	258	303	300	315	330	331	340	334	236	
26-Oct	342	356	351	348	350	342	338	344	341	350	3	360	352	351	343	341	344	340	335	331	321	331	326	329		
27-Oct	321	322	337	333	323	328	326	329	346	355	7	9	357	356	355	5	0	358	347	353	353	349	316	315	283	
28-Oct	337	329	320	313	316	319	333	330	345	337	346	349	345	350	5	359	349	341	320	191	306	159	184	0	287	
29-Oct	333	325	190	211	220	277	305	267	309	359	17	346	337	340	347	349	327	332	308	196	153	0	0	250	254	
30-Oct	241	298	290	260	253	266	268	292	325	330	330	330	315	318	318	314	300	282	257	258	247	231	247	287		
31-Oct	255	263	266	264	259	258	261	267	300	301	322	320	315	316	306	288	302	295	261	255	253	245	203	245	276	

	Total Hours in Month	744
	Valid Hours	744
	Percent Data Captured	100.0%

Meteorological Report
The Doe Run Company
 $\Sigma \Theta$

Site Name: Rivermines

Average Interval: 01 Hour

Units: Degrees

2012	Hour																								24 Hour Avg
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Oct	4.3	4.7	5.5	0.4	0.8	6.8	2.3	18.2	19.4	22.7	22.3	20.9	20.5	19.5	20.1	18.9	18.8	19.1	17.4	18.4	19.6	20.6	18.8	10.5	15
2-Oct	11.9	15.6	14.7	10.0	15.0	17.7	11.0	27.7	25.9	22.7	24.0	25.5	28.5	30.8	25.5	23.5	6.5	7.5	2.9	2.7	7.7	2.0	5.2	15.6	16
3-Oct	6.9	21.2	5.2	4.9	2.2	1.8	6.2	7.4	16.7	10.8	14.9	19.7	19.9	28.3	25.5	19.8	16.8	12.1	9.9	6.2	1.4	2.8	1.7	1.6	11
4-Oct	6.6	1.9	6.9	1.6	0.0	7.0	4.7	16.6	21.5	24.4	22.5	22.6	23.8	26.1	27.1	20.6	16.4	12.3	11.4	11.6	9.0	24.7	19.8	19.2	15
5-Oct	22.6	18.5	19.4	19.8	23.2	23.7	22.0	32.1	25.7	22.9	21.4	23.0	19.3	21.2	21.6	18.6	20.9	19.9	16.9	17.0	16.5	15.3	11.1	21	
6-Oct	12.2	11.7	11.5	27.1	3.8	1.7	0.5	12.0	15.4	29.7	35.4	28.0	25.3	21.8	20.0	19.4	19.8	18.6	6.9	7.6	18.9	16.7	18.3	18.8	17
7-Oct	15.9	17.3	19.2	17.9	15.7	1.9	0.9	18.9	23.9	23.3	28.4	38.7	31.6	38.8	38.2	22.2	17.8	6.8	5.5	2.3	1.0	5.7	5.9	7.3	17
8-Oct	2.2	7.9	4.6	1.2	6.8	8.7	11.7	20.6	21.1	30.7	35.2	31.1	33.7	29.9	27.5	24.8	20.6	13.8	13.6	12.9	4.8	3.7	1.2	0.3	15
9-Oct	3.4	3.3	2.7	3.8	0.5	2.4	5.9	30.4	23.4	23.6	23.7	23.9	23.0	24.7	24.8	23.7	20.4	15.1	14.5	14.9	11.6	12.9	4.4	13.5	15
10-Oct	20.4	24.7	20.3	9.3	15.8	18.6	20.4	22.0	20.8	21.8	24.4	29.0	43.7	34.3	30.2	32.6	22.8	5.6	8.2	7.2	6.9	8.1	5.0	1.5	19
11-Oct	3.2	1.0	0.3	9.4	4.1	16.8	8.3	25.7	23.5	22.3	23.6	21.3	22.6	24.7	22.2	20.5	20.7	18.4	17.7	25.3	25.5	2.7	7.4	16	
12-Oct	14.1	20.7	31.1	17.2	19.9	18.3	24.4	23.3	22.4	28.7	30.4	31.1	27.8	26.9	26.1	22.2	15.1	6.9	7.8	4.1	9.3	12.7	18.6	20.7	20
13-Oct	20.4	20.2	24.2	21.6	19.0	20.6	23.4	22.1	23.8	21.1	19.3	23.2	19.6	21.1	20.8	20.3	21.3	21.3	22.9	21.7	21.6	19.5	18.8	19.7	21
14-Oct	23.1	29.3	18.0	23.4	26.2	18.4	18.1	19.6	18.4	21.0	19.5	21.0	23.5	26.5	31.4	31.7	29.5	21.0	8.0	1.2	24.2	20.7	13.9	20.2	21
15-Oct	15.2	13.9	8.3	16.5	17.1	8.9	8.6	14.1	24.5	31.1	31.9	33.2	32.0	38.6	35.2	34.2	7.2	4.9	2.3	0.3	0.4	0.3	0.0	0.4	16
16-Oct	9.1	0.0	4.3	1.9	0.8	0.4	4.9	19.5	18.8	22.0	25.2	22.9	21.9	19.9	21.3	20.4	17.3	16.4	15.6	15.9	17.3	17.8	18.6	18.9	15
17-Oct	18.8	19.1	20.2	19.4	17.0	19.0	19.6	19.9	20.1	22.7	19.2	19.8	18.9	18.7	17.2	18.4	23.2	35.8	15.4	26.3	27.4	21.1	13.7	11.6	20
18-Oct	16.5	13.6	12.8	14.1	17.0	16.0	12.9	20.6	25.7	25.7	27.1	24.5	25.0	24.1	23.2	25.4	23.3	20.9	18.5	17.6	18.5	19.4	19.9	22.8	20
19-Oct	18.9	24.1	25.3	24.7	24.3	27.3	26.3	24.4	29.6	28.3	29.8	30.6	27.1	29.4	28.7	27.8	28.3	28.2	19.2	10.8	13.6	9.5	8.4	6.2	23
20-Oct	0.0	2.4	2.7	5.5	6.2	0.1	6.3	8.1	14.4	15.8	32.2	39.8	45.3	38.1	26.5	38.5	18.9	11.7	16.3	18.8	19.5	10.8	7.5	7.1	16
21-Oct	11.7	14.6	21.8	8.7	4.6	8.5	16.3	15.2	20.1	21.8	25.6	27.2	25.4	24.7	23.4	23.5	19.0	20.2	22.5	19.7	19.3	19.5	20.4	18.5	19
22-Oct	14.6	15.4	20.1	22.8	18.6	18.2	23.0	19.0	17.2	20.6	18.0	19.4	20.3	19.0	17.4	19.8	17.9	18.9	17.8	16.1	15.1	17.9	17.8	16.5	18
23-Oct	18.3	21.1	20.0	17.3	17.4	18.8	20.1	18.0	21.0	26.8	17.7	20.6	18.0	18.4	18.7	19.1	17.1	19.3	17.8	18.1	16.9	18.0	19.7	18.7	19
24-Oct	20.6	16.0	12.5	15.1	12.3	20.5	18.8	18.1	20.3	19.6	19.0	18.5	18.0	22.7	18.8	17.6	18.3	15.9	16.9	17.2	16.6	16.0	17.4	17.2	18
25-Oct	15.9	15.5	15.6	16.1	17.1	16.1	16.5	16.6	16.8	20.0	18.8	18.8	18.7	17.2	18.9	16.4	33.7	21.4	22.0	17.0	15.5	16.8	16.3	16.8	18
26-Oct	17.2	16.9	17.8	17.4	18.0	16.6	16.3	17.2	16.8	18.4	17.7	20.4	20.1	21.4	21.9	19.0	16.7	15.1	13.7	14.8	13.6	11.4	11.0	12.0	17
27-Oct	12.3	13.1	14.4	15.3	18.0	15.2	18.4	18.6	21.5	22.8	22.1	25.0	23.0	24.1	22.7	20.1	17.2	15.1	13.6	12.4	14.6	17.2	16.8	13.8	18
28-Oct	14.8	9.0	17.7	15.8	18.4	21.1	15.7	17.5	20.5	19.8	19.8	22.3	24.2	20.8	22.9	19.0	16.3	13.3	6.7	0.3	13.0	1.6	10.5	22.0	16
29-Oct	13.9	10.8	0.4	5.0	9.0	9.7	18.4	12.4	19.7	20.2	26.8	32.6	25.7	29.0	20.6	19.3	12.5	10.4	6.6	0.5	4.6	0.0	0.0	2.7	13
30-Oct	5.0	15.7	20.1	15.0	3.5	14.0	15.8	17.8	14.9	15.8	16.4	20.2	21.6	21.6	22.8	17.2	14.1	15.3	8.3	10.4	3.4	7.6	7.4	7.5	14
31-Oct	3.6	3.6	1.6	2.5	6.8	2.9	2.5	8.4	22.9	25.8	21.7	22.1	21.3	19.6	24.4	23.9	16.8	7.5	5.0	5.6	6.7	1.9	1.0	6.3	11

	Total Hours in Month	744
	Valid Hours	744
	Percent Data Captured	100.0%

Meteorological Report
The Doe Run Company
Temperature

Site Name: Rivermines

Average Interval: 01 Hour

Units: Deg. C

Sampling Frequency: 01 Second

2012	Hour	24 Hour																									
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max
1-Oct	11	11	11	11	11	11	11	12	13	14	16	18	18	18	18	17	17	16	15	15	13	13	13	11	11	17.9	13.9
2-Oct	9	9	8	8	7	7	8	12	14	17	19	20	20	21	21	20	18	16	15	14	14	14	14	14	14	20.7	14.1
3-Oct	14	13	12	12	11	11	12	14	18	21	22	22	22	23	24	23	22	20	19	18	16	16	15	14	14	23.8	17.1
4-Oct	13	12	12	12	12	11	12	17	22	24	26	27	27	28	27	27	25	23	20	20	18	17	16	14	14	27.7	19.2
5-Oct	13	11	11	11	11	11	11	10	11	11	9	8	8	7	6	7	6	6	6	6	5	5	4	4	12.6	8.6	
6-Oct	3	2	2	2	1	1	2	4	5	7	8	9	10	9	8	8	7	6	6	6	6	6	5	5	5	9.8	5.3
7-Oct	5	5	5	4	3	1	2	5	7	8	9	10	11	12	12	12	11	9	6	4	4	3	3	3	3	11.7	6.4
8-Oct	3	3	2	1	0	0	0	4	8	12	14	15	15	16	16	16	15	12	10	9	7	5	4	4	4	15.9	7.9
9-Oct	3	3	2	2	1	1	2	8	13	15	16	17	17	18	19	19	17	15	13	13	13	13	13	13	13	18.5	11.1
10-Oct	11	8	8	6	5	5	5	7	9	10	11	12	13	14	14	14	13	10	7	5	4	3	3	2	2	14.0	8.3
11-Oct	2	1	1	0	0	1	7	10	11	13	15	15	15	16	17	16	15	14	14	14	13	11	11	11	11	16.6	9.5
12-Oct	11	11	11	11	11	11	11	12	11	12	13	14	14	15	15	15	15	14	13	12	11	11	12	12	12	15.0	12.2
13-Oct	13	13	13	14	15	15	15	16	17	19	21	21	23	23	23	23	23	22	22	22	22	22	22	22	22	23.3	19.3
14-Oct	20	18	17	17	17	18	18	18	19	21	22	22	22	21	17	18	18	17	14	13	13	13	12	11	11	22.2	17.3
15-Oct	10	9	8	8	7	7	7	7	10	14	17	19	21	21	22	22	22	21	17	13	11	10	10	9	9	22.2	13.5
16-Oct	9	8	7	7	7	7	7	11	16	23	25	26	27	28	27	27	25	23	22	20	19	18	18	17	17	27.5	17.6
17-Oct	17	17	16	15	15	14	15	16	17	18	18	18	19	19	17	17	18	14	13	13	13	11	11	10	18.9	15.4	
18-Oct	10	9	9	8	8	8	7	9	12	14	16	16	17	17	17	17	16	15	15	14	13	12	12	12	12	17.1	12.5
19-Oct	12	12	12	11	11	10	10	10	11	12	12	12	12	12	12	12	11	10	9	9	9	8	7	7	7	12.4	10.5
20-Oct	7	7	6	5	4	4	5	7	11	12	14	16	18	19	20	20	19	17	15	14	13	11	10	9	9	20.1	11.8
21-Oct	10	12	10	10	9	10	12	15	17	21	23	24	25	25	24	24	22	21	21	21	21	21	21	21	21	24.9	18.3
22-Oct	20	20	19	18	18	18	18	19	21	23	25	26	27	27	27	26	25	25	24	23	22	22	22	21	21	27.2	22.4
23-Oct	21	21	21	21	21	20	18	18	18	19	22	24	26	27	27	27	26	24	23	22	22	21	21	21	21	27.3	22.1
24-Oct	20	19	18	17	16	16	17	20	21	23	25	26	26	27	27	27	26	25	24	23	22	22	21	21	21	27.2	22.1
25-Oct	21	21	20	20	20	20	20	21	22	24	25	26	26	25	27	26	20	13	10	8	7	7	7	7	7	26.5	18.5
26-Oct	7	6	6	5	5	5	4	4	4	5	6	8	9	10	10	10	9	8	6	6	5	4	3	2	2	9.8	6.1
27-Oct	2	2	1	0	0	0	0	0	1	3	5	7	9	10	11	11	10	9	8	7	5	3	3	1	1	10.7	4.5
28-Oct	1	0	1	0	0	0	0	2	4	6	8	9	10	10	10	10	9	8	4	2	2	1	1	1	1	10.1	4.1
29-Oct	0	0	-2	-2	-2	-2	-2	-2	1	5	7	9	10	11	12	12	12	11	9	6	4	3	2	1	1	12.1	4.4
30-Oct	1	1	1	0	0	0	0	0	3	6	8	10	12	13	14	14	14	12	11	9	7	5	5	4	4	14.2	6.4
31-Oct	3	3	3	2	2	1	1	4	7	9	11	12	14	14	15	14	14	13	10	7	6	6	5	3	2	14.9	7.1



Maximum Hour//Monthly Average	27.7
Total Hours in Month	744
Valid Hours	744
Percent Data Captured	100.0%

Meteorological Report
The Doe Run Company
Site Pressure

Site Name: Rivermines

Average Interval: 01 Hour

Units: mmHg

Sampling Frequency: 01 Second

2012	Hour	24 Hour																										
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max	Avg
1-Oct	740	740	740	739	739	739	739	739	739	739	739	739	739	738	738	738	738	738	739	739	739	739	739	739	739	740	739	
2-Oct	739	739	739	740	740	741	741	741	741	741	741	741	741	740	740	740	740	740	741	741	742	742	742	742	743	743	743	
3-Oct	743	743	743	743	744	744	744	745	744	745	744	744	744	744	744	744	744	744	744	745	745	746	746	746	746	746	744	
4-Oct	747	747	747	748	748	748	748	748	749	748	748	748	748	748	747	747	747	747	747	747	747	747	747	748	749	749	748	
5-Oct	749	749	749	749	749	749	749	749	749	749	749	749	749	748	748	748	748	748	749	749	749	749	749	750	750	750	749	
6-Oct	750	750	750	750	751	751	751	751	751	751	751	751	751	750	750	750	750	750	750	750	750	751	751	751	751	751	751	
7-Oct	751	751	751	751	751	751	751	751	751	751	751	751	751	750	750	749	749	749	749	749	750	750	750	750	750	751	750	
8-Oct	750	750	750	750	750	750	750	750	750	750	750	750	750	749	749	748	747	747	747	746	746	747	747	747	747	750	748	
9-Oct	747	747	747	747	747	747	747	747	747	747	747	746	746	745	744	744	743	743	743	743	743	743	744	745	745	745	745	
10-Oct	746	747	747	748	749	749	749	750	750	751	751	751	751	751	750	750	750	750	750	750	750	750	751	751	751	751	750	
11-Oct	751	751	751	751	751	751	751	751	751	751	751	751	751	750	749	749	748	748	748	749	749	749	749	749	749	751	750	
12-Oct	750	750	750	750	750	750	750	750	751	752	752	753	753	753	752	751	751	751	751	750	750	750	750	750	750	753	751	
13-Oct	749	749	748	748	748	748	748	747	747	747	747	746	746	746	745	744	744	743	743	743	742	742	741	740	740	739	749	745
14-Oct	740	740	739	738	738	738	738	738	739	738	738	738	738	738	739	740	740	740	741	741	742	743	743	744	744	744	740	
15-Oct	744	744	744	744	744	744	745	745	745	745	745	745	745	745	744	744	743	743	743	743	743	743	743	744	744	745	744	
16-Oct	743	743	742	742	742	742	742	742	741	741	741	740	739	738	738	737	737	737	736	737	737	737	737	737	737	737	739	
17-Oct	737	736	736	736	736	736	735	735	735	735	734	734	734	733	733	732	731	730	732	732	733	734	734	735	736	737	734	
18-Oct	736	736	736	736	736	736	737	737	737	737	737	736	736	736	735	735	735	735	735	736	736	736	735	735	736	737	736	
19-Oct	735	735	735	735	735	735	735	735	735	736	736	736	736	736	735	735	735	735	735	736	736	736	735	735	735	737	737	
20-Oct	740	740	741	741	741	741	742	742	742	742	743	743	743	742	742	741	741	741	741	741	741	742	742	742	743	741		
21-Oct	742	743	743	743	743	743	743	743	743	743	743	743	743	742	742	742	742	743	743	743	743	743	743	743	743	743	743	
22-Oct	743	744	744	744	744	744	744	744	744	744	743	743	743	742	742	742	742	743	743	743	744	744	743	744	744	743	743	
23-Oct	743	743	744	744	744	744	744	744	744	744	744	744	744	743	742	742	742	742	742	742	743	743	743	744	744	744	743	
24-Oct	744	744	744	744	744	744	745	745	745	745	745	745	745	744	744	743	742	742	742	743	743	742	742	742	745	745	743	
25-Oct	742	741	741	741	741	742	742	741	741	741	741	741	741	740	740	740	740	741	741	744	745	746	747	747	748	749	749	
26-Oct	749	749	750	750	750	751	751	752	752	753	753	753	752	752	751	751	751	751	751	751	751	752	752	752	753	751		
27-Oct	752	752	751	751	751	752	752	752	752	752	751	751	751	750	749	749	749	749	749	750	750	750	751	751	751	752	751	
28-Oct	751	750	750	750	751	751	751	751	751	751	751	751	751	750	750	750	750	750	750	750	750	751	751	751	751	751	751	
29-Oct	751	751	751	751	752	752	752	752	752	752	752	752	751	750	750	749	749	749	749	748	748	748	748	748	748	752	750	
30-Oct	747	747	747	748	748	748	748	748	748	748	748	748	748	747	747	747	747	747	747	747	747	747	747	747	747	747	744	
31-Oct	743	744	744	744	744	744	744	744	744	744	744	744	744	744	744	743	743	743	743	743	743	743	743	743	745	744	744	



Maximum Hour//Monthly Average
 Total Hours in Month
 Valid Hours//Percent Data Captured

753
 744
 744
 100.0%

Meteorological Report
The Doe Run Company
Precipitation

Site Name: Rivermines

Average Interval: 01 Hour

Sampling Frequency: 01 Second

2012	Hour																									24 Hour		
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.24	0.03	0.22	0.15	0.01	0.12	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.24	0.81
6-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.07	0.14	0.14	0.00	0.00
12-Oct	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
13-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14-Oct	0.24	0.57	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.88	0.00
15-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.53	0.04	0.00	0.01	0.00	0.00	0.00	0.53	0.60	0.00	
18-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.13	0.31	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.46	0.00
24-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.10	0.08	0.01	0.00	0.00	0.19	0.38	0.00	
26-Oct	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	
27-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31-Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

 BARR	Maximum Hour//Monthly Total	744	3.29
	Total Hours in Month	744	100.0%
	Valid Hours//Percent Data Captured	744	100.0%